

WHAT IS CLAIMED IS:

1. A gray scale display method for providing memories that respectively store each bit of gray scale data which indicates gray shade and that cause pixels arranged in a matrix in the row direction and in the column direction to produce a gray scale display, said gray scale display method comprising the steps of:
  - dividing one field into subfields corresponding to bits of said gray scale data;
  - setting a period of each subfield in such a manner as to correspond to a weight of each of said bits;
  - in one subfield and with respect to one pixel,
  - reading, from said memory, bits corresponding to the subfield within the gray scale data corresponding to the pixel;
  - latching the bits;
  - producing at least one of an ON display and an OFF display according to the bits; and
  - writing the latched bits to the read memory again.
2. An electro-optical device which has pixels arranged in a matrix in a row direction and in a column direction, which divides one field into subfields corresponding to bits of gray scale data, which sets a period of each subfield in such a manner as to correspond to a weight of each of said bits, and which causes each of said pixels to produce at least one of an ON display and an OFF display according to the corresponding bits within said gray scale data, said electro-optical device comprising for each of said pixels:
  - memories that store each bit of said gray scale data;
  - a selector that selects a memory that stores bits corresponding to a subfield from among said memories;
  - a latch circuit that reads and latches bits stored in the memory selected by said selector, and that rewrites in the memory selected by said selector;
  - an on/off selection switch that selects a voltage corresponding to an ON display or an OFF display in accordance with the bit read from the memory selected by said selector; and
  - a pixel electrode to which the voltage selected by said on/off selection switch is applied.
3. The electro-optical device according to Claim 2, said memory including:
  - a first transfer switch that transfers the bits of said gray scale data when a writing control signal indicating a bit writing timing switches to an active level; and

said on/off selection switch alternately selecting, for one or more fields, a positive-polarity-side voltage and a negative-polarity-side voltage, in which the voltage

differences with respect to the voltage corresponding to said OFF display are nearly equal, in accordance with a polarity signal indicating a writing polarity when the voltage corresponding to said ON display is selected.

12. An electronic apparatus, comprising:  
the electro-optical device according to claim 2.